BIEG - BIOLOGICAL ENGINEERING (BIEG)

*Course Fees are Per Credit Hour

BIEG 230. Fundamentals of Biological Engineering. (2 Credits)
This course introduces the various sub-disciplines of biology-related engineering fields as well as knowledge and skills important to the biological and bioprocess engineering fields. Topics include the roles and career pathways available, the interdisciplinary nature of the discipline, and an introduction to the types of problems and calculations commonly encountered in biological engineering. Prerequisite or Corequisite: MA 125.
Course Fees: $60

BIEG 330. Bioprocess Engineering. (4 Credits)
This course covers the application of biological, biochemical, and engineering fundamentals to bioprocess engineering systems and operations including aspects of biology, biochemistry, and microbiology as applied to bioprocess engineering concepts. Topics include bioprocessing kinetics, bioenergetics, quantification of metabolism, bio-manufacturing practices, and the role of bioprocess engineering in medicine. Prerequisites: BI 112, MA 126, BIEG 230.
Course Fees: $60

BIEG 340. Biomaterials. (3 Credits)
This course covers the foundations of biomaterials and their structure, properties, and behavior in biological systems. Topics include the structure and organization of hard and soft tissues, the function and organization of organs such as the heart or the eye, a survey of common materials used for biomedical implants, as well as issues related to biocompatibility, carcinogenesis, the complement, and/or drug delivery systems. Prerequisites: EG 202, BIEG 230.
Course Fees: $60

BIEG 430. Bioreactor Design. (3 Credits)
This course introduces the fundamental engineering principles of design for bioreactors, particularly as applied to industrial processes. Topics include modeling and design of batch and continuous bioreactors based on biological growth kinetics and mass and energy balances, fluid flow, mixing heat transfer and mass transfer, biological reaction, instrumentation, and control. Prerequisite: BIEG 330.
Course Fees: $60